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Intergenerational transfers and fertility: Trade-off between human capital and child labour

Kouki Sugawara *

Graduate School of Economics, Osaka university, 1-7 Machikaneyama, Toyonaka 560-0043, Japan

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ABSTRACT

This paper analyzes the relationship between demographic transition and intergenerational transfers using an overlapping generations model with endogenous fertility. In particular, this paper considers a growth model in which the young generation confronts a trade-off between an education for human capital accumulation and child labour. At low levels of human capital, both the fertility rate and income transfers from children to parents are at high levels, because the opportunity cost of child rearing is low, and the wages of child labour are important for household income with low parental labour wages. An increase in the human capital decreases the fertility rate and reverses the income transfers to the opposite direction from parents to children. Thus, we demonstrate the significant relationship between demographic transition and intergenerational transfers. We also demonstrate the possibility of multiple equilibria in the form of a poverty trap equilibrium with a low human capital level and a steady state with a high human capital level.

1. Introduction

Many economists since Malthus (1993) have studied the very important problems associated with demographic transition and fertility rates. According to Malthus (1993) and Kuznets (1966), demographic transition was initially presented as the problem that population explosion causes natural resource depletion. Currently, population problem is associated with the aging of population caused by low mortality and fertility rates in developed countries. A number of theoretical approaches have been developed to explain this demographic transition. For example, Becker and Barro (1988) and Becker et al. (1990) develop an endogenous fertility theory that explains the negative relationship between the fertility rate and the human capital level.[1] Galor and Weil (2000) succeed in explaining the history of the nonmonotonic relationship between economic development and the fertility rate.[2]

On the other hand, Caldwell (1976, 1978) reveals that intergenerational transfers play an important role for demographic transition. In Bangladesh and Nigeria, children are considered to have not only a duty to support their family, but also a role in reducing the risks of aged parents, as child wage income is important for family income.[3] Based on these facts, Caldwell

* Tel.: +81 6 6850 6111.
E-mail address: dg025sk@mail2.econ.osaka-u.ac.jp

[1] Doepke (2004) constructs the model for accounting of the large cross-country variation in the timing and speed of the demographic transition using by calibration.

[2] As is well known, because the mortality rate is relatively high at early stages of development, population growth tends to follow a hump-shaped path. Blackburn and Cipriani (1998, 2002) and Kalemli-Ozcan (2002) explain this hump-shaped path by using the model of endogenous changes in the mortality rate or longevity. In addition, Azarnert (2006) shows that the timing of mortality relative to education is crucial to implications of mortality decline.

[3] See Ray (1998) for children's role in reducing a variety of developing country-specific risks.

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states that the high fertility rate is a rational parental choice because of the economic circumstances causing parents to rely on child wage income. Thus, the fertility rate is high in developing countries. In contrast, Caldwell proposes the presence in developed countries of transfers from parents to children, in the form of direct transfers like bequests and/or indirect transfers like the provision of an education. Therefore, low fertility rates occur in developed countries because parents prefer quality rather than quantity of children.

We emphasize that intergenerational transfers are among important factors influencing fertility choice as pointed out by Caldwell. Blackburn and Cipriani (2005) develop a model based on the Caldwell hypothesis. They analyze the relationship between the fertility rate and intergenerational transfers expressed as gifts and bequests caused by the two-sided altruism in an overlapping generations model. In particular, Blackburn and Cipriani (2005) explain the consequences of the Caldwell hypothesis by using a dynamic analysis. [4] They explain that the fertility rate declines and intergenerational transfers turn into bequests from gifts in an endogenous growth model in which there is an externality associated with per capita labour supply. They explain the Caldwell hypothesis by considering the following situations with the technological progress. The fertility rate decreases with an increase in the opportunity cost of child rearing caused by an increase in the parental wage income. In addition, an increase in the parental wage income makes intergenerational transfers turn into bequests from gifts. In consequence, a high fertility rate and gift transfers from children to parents exist in economies with a low technological level. Technological growth decreases the fertility rate and causes intergenerational transfers to be converted into bequests from gifts.[5]

This paper augments Blackburn and Cipriani's (2005) study, which is based on the Caldwell hypothesis, as we engage the problems associated with child labour and human capital.[6] Child labour have a close relationship to intergenerational transfers and fertility rates because parents have to force children to work if household income crucially depends on the wages of children. In fact, the ratio of children aged between 5 and 14 at work in economic activity is 2% in developed countries, but 19% in Asia and the Pacific, 16% in Latin America and the Caribbean, 29% in Sub-Saharan Africa and 15% in the Middle East and North Africa (Statistical Information and Monitoring Programme on Child Labour (SINPOC)). By comparison, the preindustrial child-labour ratio was 36.6% in England and Wales. In addition, Rosenzweig and Evenson (1977) and Grootaert and Kanbur (1995) provide empirical evidence of the positive relationship between fertility and child labour. Therefore, in identifying the relationship between fertility choice and intergenerational transfers, we should consider child labour.

Furthermore, the crux of the problem is that child labour impedes the ability of children to receive an education and the accumulation of the human capital. Because child labour actually imposes psychological, physical and temporal burdens, child labour has negative effects on educational achievement. For example, Jensen and Nielsen (1997) provide evidence of the trade-off between child labour and the educational level in Africa. Psacharopoulos (1997) and Patrinos and Psacharopoulos (1997) provide evidence for Latin America.[7] In addition, parents with the high level of human capital do not engage children to work since they can afford to educate children.[8] Thus, it is important to analyze the relationship between intergenerational transfers, fertility rates and child labour on the theory of human capital.

This paper derives results to explain the above-mentioned empirical evidence by considering the trade-off between child labour and education and the positive relationship between education and human capital accumulation. If fertility rates and child labour are both high, the rate of human capital accumulation is slow at low educational levels, because parents depend on child labour income. If fertility rates are low and parents transfer income to children, human capital accumulation is stimulated because of low child labour and high educational level.[9] Thus, this paper derives the Caldwell hypothesis that fertility rates and net transfers from children to parents decrease with economic development based on the human capital theory. In addition, the fact that educational levels increase and child labour decreases with economic development portrays a positive relationship between *indirect* transfers from parents to children and economic development. This relationship also explains part of the Caldwell hypothesis. Thus, the relationship between fertility rates and intergenerational transfers results in the negative relationship between child labour and economic development that is validated by the empirical evidence.[10]

This paper explains the Caldwell hypothesis, pointing out a significant positive relationship between fertility and net intergenerational transfers with economic development by using a dynamic model that incorporates human capital and

[4] Wigniolle (2002) describes two regimes. One regime has a high fertility rate and transfers from children to parents in a steady-state equilibrium. The other regime has a low fertility rate and transfers from parents to children in the equilibrium growth path.

[5] Nishimura and Zhang (1992) discuss the relationship between intergenerational transfers and pensions in an overlapping generational model of endogenous fertility. Raut (2004) explains intergenerational transfers by the intergenerational strategic interaction in an overlapping generations model of endogenous fertility. However, their research does not intend to reveal this relationship.

[6] See Basu (1999) for a well-informed survey on child labour. See also Basu and Van (1998) and Baland and Robinson (2000) for a theoretical approach to child labour. Both studies explain the presence of child labour by using a partial equilibrium approach and provide interesting conclusions regarding the wealth effect as a result of banning child labour.

[7] Ravallion and Wodon (2000) provide empirical evidence that the transition policy from child labour to schooling was effective in Bangladesh. Rammonhan (2000) emphasizes this trade-off in a theoretical model.

[8] Bils and Klenow (2000) demonstrate this relationship in US date.

[9] In this paper, parents make all family decisions, including the net level of intergenerational transfers and children's consumption. Therefore, intergenerational transfers do not represent a gift or bequest that corresponds to voluntary transfers of each member of the family as assumed in two-sided altruism.

[10] See Dessy (2000), Hazan and Berdugo (2002) and Strulik (2004) for related studies explaining the relationship between child labour and economic development. Dessy (2000) and Hazan and Berdugo (2002) analyze the relationship between child labour and fertility rates with economic development. Strulik (2004) provides a model that explains the two economic factors supported by empirical evidence. First, there is a negative relationship between the child mortality rate and economic development. Second, there is a negative relationship between child labour and economic development.